Artificial Intelligence vs. Human Intelligence: The case of poetry

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Poetry is one of the fields with which science is experimenting on one of the most cutting-edge technologies, Artificial Intelligence (AI). The projects and the sites that produce poetry with technical means are numerous: Poevolve, Poetry Creator, Poem Generator, Tra-La-Lyrics, PoeTryMe, iPoet (in Chinese), PoemBot, PoemPotraits and Verse by Verse (Google's), Talk-ToTransformer, Bot or Not are just some of them.

Most of the above sites and projects are based on one of the branches of AI called machine learning. According to machine learning, the right algorithms can help a computer self-improve as it acquires more experience.[1] Thus, a computer can be "trained" to produce what is required of it, in this instance poems, based on a body of data (e.g. the poems of an existing poet) and an algorithm that explains to it how it can use them (which would include elements such as the number of stanzas or lines in a stanza; this is the template-based approach)[2] or just by putting together random words based on typical requirements, e.g. the desired number of syllables for rhythm (generate and test approach). Results have been found to range from simply bad to fairly good, in which latter case they have been produced by chance.

But why poetry? Why have scientists who already work on AI speech synthesis chosen poetry out of all literary genres? Why not choose another short from, e.g. bonsai short stories (with a typical ceiling of around 600 words)? The answer lies in the characteristics of each genre. A short story, however small, must have a structure: characters, dialogues, plot. Poetry,

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[1] See Mitchell, T. (1997), *Machine Learning*, McGraw Hill Science/Engineering/Math, and Mitchell, T. (2006), "The Discipline of Machine Learning", available on http://www.cs.cmu.edu/ tom/pubs/MachineLearning. pdf, accessed on 30.5.2021.

[2] For an analysis of this and other approaches (e.g. evolutionary approach, case-based reasoning approach), see Oliveira, H. C. (2009) "Automatic generation of poetry: an overview" on researchgate.net (accessed on 28.9.2019).

on the other hand, while considered the most difficult literary genre to grasp, as it involves a multitude of language levels (vocabulary, grammar, syntax, semantics, phonemics, metrics, figures of speech, etc.), incorporates a degree of arbitrariness, since there are no strict or universal rules for what is acceptable or not. It also incorporates a degree of absurdity, as many a time it not only resists commonly acceptable meaning, but also reverses it. Moreover, although it includes many levels of language, it does not require the use of all of them at the same time in order to exist: in other words, it is not mandatory for all these elements to be present in a single poem.

The above characteristics of poetry make it fertile ground for experimentation and this is also the reason why many new and ambitious writers start off with poetry, usually ending up writing bad poems. The whole situation is made worse by the fact that nowadays readers are equally unaware: they do not have the evaluation criteria or, even worse, the ability to understand the poetry they are reading.

There is also another reason to choose poetry as an experimentation field: in order to understand a literary work, the author's contribution is no longer relevant. No matter if a poem has come as a result of the poet's experiences, if it mirrors his thoughts or his need to produce something new, literary theory with formalism, new criticism, structuralism and its reader-centered approaches[3] has turned the light to the text first and the reader next, bringing about the "death of the author".[4] The text, therefore, has been considered an autonomous entity for the understanding of which nothing else is needed than its own words.

Bot or Not

How can someone today understand if a poem has been written by a human being or by a computer? The answer is that more often than not he can't! And this is because some of AI attempts are really good and also because human beings have written poems that mimic computer attempts, reflecting the incoherence of the modern era. Examples are numerous: LangPo, erasure poetry, OuliPo, magnetic poetry, Flarf. Here follows a characteristic example of such a poem:

Red Faces

Red flags the reason for pretty flags. And ribbons. Ribbons of flags And wearing material Reason for wearing material. Give pleasure. Can you give me the re-

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[3]Indicatively, psychoanalytic criticism, reception theory and reader response criticism.

[4]Barthes, R. (1967), "The Death of the Author", *Aspen*, No 5-6, trnsl.: R. Howard, available in http://www.ubu.com/aspen/aspen5and6/threeEssays.html (accessed on 30.5.2021).

gions. The regions and the land. The regions and wheels. All wheels are perfect. Enthusiasm.

On the site "Bot or Not" (botpoet.com), in which the visitor is called to choose whether the poem that appears on his screen is written by a human poet or by AI, the above poem by Gertrude Stein has been considered by at least 70% of the answerers written by a computer.[5]

And, for argument's sake, a rather good attempt (although with shortcomings in coherence and meaning) at a poem generated by Deep-Speare[6]:

> that is the world art we a lord of god give in him, evermore to teach my prayers
> and only to forget her for its sake it is not love, for all thy flesh and peace.

So, if there are computers that write as computers, computers that write as human beings, human beings that write as human beings, and human beings that write as computers, what on earth is going on? This question was posed by one of the devisors of the site "Bot or Not", Oscar Schwartz, in a 6-minute Tedx speech. Schwartz then goes on talking about something that has also preoccupied another scientist, Byron Reese, in his book *The Fourth Age: Smart Robots, Conscious Computers, and the Future of Humanity* (Atria Books, 2018): it is about the capacity of being human and what defines it. Is it something with which we are born or something that we are trained to become? And how do we define which one is part of it or pertains to it?

In 2017, six scientists wrote and signed a manifesto,[7] in which they are also wondering: Is the capacity of being human something that can be lost or won? Are those who torture, kill, humiliate human existence still considered human? Is a person born e.g. in a western country more human than an indigenous in, say, New Zealand? In the end, is human nature a social, thus changing, construct? And they end up saying: "It's time for us to come out and start building a community of AI scientists, neuroscientists, philologists, game developers, historians of literature, movie producers, writers, entrepreneurs — all those who are united by the passion to discover the first principle of humanity and — furthermore — by the genuine

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[5]The site operates on the basis of "Turing tests". A Turing test, named after the computer scientist Alan Turing, is intended to show whether a machine can convince someone that it is human.

[6]Deep-Speare is a joint neural model of poetic language, meter and rhyme. See https://aclweb. org/anthology/P18-118 and also https://specturm.ieee.org/artificial-intelligence/machine-learning/this-ai-poet-mastered-rhythm-rhyme-and-natural-language-to-write-like-shakespeare (accessed on 25.6.2021).

[7]Barzov, Y., Cherdak, V., Matskevich, E., Orlovskiy, S., Ryabov, B. & Sukhy, I. (2017), "Manifesto: Time for Humanness Learning", available in: https://towardsdatascience.com/manifeto-time-for-humanness-learning-51051befa5f4 (accessed on 31.5.2021).

desire to provide humans and machines with compelling and efficient tools of learning and relearning to be human".[8]

Even if, however, certain people need to re-learn how to be human, this does not mean that they were not born totally humane. The capacity of being human lies at the core of our existence, is interwoven with the language we speak, our mental tools, our imagination,[9] our emotions. Even if we create computers with human form or capacities, they will remain mirrors of the human beings, who – among other things – feature self-awareness and a sense of identity, something that a machine, which is programmed just to execute orders, does not dispose of. Transhumanist thinkers have long thought about such questions.[10] Is it, then, ever imaginable for a mirror to reach or overcome that which it mirrors? It remains to be seen.

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[8]Digital Humanities are a step in this direction. See, e.g. Arnold, M., Decker, E., & Volkmann, A. (2017). Digital Humanities Strategies in Transcultural Studies. https://doi.org/10.11588/heidok.00023729; Tanasescu, C., Kesarwani, V., & Inkpen, D. (2018). Metaphor detection by deep learning and the place of poetic metaphor in digital humanities. Computational Linguistics for Cultural Heritage, Social Sciences, Humanities and Literature, LaTeCH 2017, pp. 1–9.

[9]For the importance of imagination, see Barzov, Y. (2018), "Human Intelligence (HI) is underrated", available on: https://medium.com/@yuribarzov/humanness-is-underrated-d2b745124dd4 (accessed on 31.5.2021).

[10]See, e.g.,Bostrom, N. (2005), "A history of transhumanist thought", *Journal of Evolution & Technology*, (14)1. Available at: https://www.nickbostrom.com/papers/history.pdf (accessed on 25.6.2021).